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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,967	12/23/1999	Kunihito Seta	018976-154	6834

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BURNS DOANE SWECKER & MATHIS L L P
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EXAMINER

HECKENBERG JR, DONALD H

ART UNIT PAPER NUMBER

1722

DATE MAILED: 10/23/2002

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/470,967	Applicant(s) SETA ET AL.
Examiner Donald Heckenberg	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,2,4-7 and 35-59 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4-7 and 35-59 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a))

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). ____ .
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: ____ .

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1. Claim 54 is objected to because of the following informalities: line 10 recites "a pressure sensor detecting a detecting a pressure in the resin extrusion direction." The repetitive "detecting a" needs to be deleted. Appropriate correction is required.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-2, 4-7, and 35-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 36, 42, 48, and 54 all recited that "said buffering unit [feeds] the resin held in the buffering chamber into the injecting unit during measuring resin into the injection unit[.]" This phrase is difficult to understand. It appears to be indicating that the buffering chamber feeds a measured amount of resin into the injection unit. However, the language of the claim is not clear and appears to be

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grammatically incorrect. Appropriate correction and/or clarification is required.

Claim 48, lines 11-12 recite, "a piston rod connecting said screw, and a position detecting sensor detecting a measurement of said piston rod." Written as such, the meaning of this phrase is unclear. It cannot be determined if this phrase intends to indicate that the piston rod is connected to the screw, or if the piston rod connects the screw and the position sensor. Appropriate clarification and/or correction is required.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-2, 5, 7, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Pub. No. 197 18 174 (previously of record; hereinafter "DE '174") in view of Yabushita (US Pat. No. 5,389,315; previously of record).

DE '174 teaches a thermoplastic resin injection molding machine comprising a plasticating unit (5) for plasticating a thermoplastic resin, an injection unit (8) connected to the plasticating unit through a connecting passage (the passage

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being parts 2₀ and 9 as shown in fig. 3), to inject the plasticated resin into a mold, a buffering unit (13) having a buffering chamber having a volume at least equal to the injection quantity of the resin per shot, the buffering unit receiving the resin plasticated in the plasticating unit during an injection by the injection unit, and the buffering unit feeding resin held in the buffering chamber into the injection unit, and a plunger (11) and a pot (12) with a piston rod attached to the plunger (extending back into chamber 29 as shown in fig. 1) reciprocating the plunger in the buffering unit (see figs. 1 and 3). DE '174 further teaches a means for energizing the plunger to comprise a fluid pressure cylinder (29).

DE '174 fails to teach a detecting sensor for detecting a measurement of a piston rod of the plunger.

Yabushita teaches, with respect to the embodiment shown in figure 5, an injection molding machine comprising a buffering-metering chamber with a plunger, with a sensor (154) detecting the position of a piston rod of the plunger (see fig. 5) for the purpose of precisely metering the material in the buffering chamber (col. 5, lns. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 as such to have provided a sensor

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detecting the position of the piston of the plunger because this would allow for metering of desired quantities of resin as suggested by Yabushita.

8. Claims 36-37, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 in view of Amano et al. (US Pat. No. 5,773,042).

DE '174 teaches a thermoplastic resin injection molding machine comprising a plasticating unit (5) for plasticating a thermoplastic resin, an injection unit (8) connected to the plasticating unit through a connecting passage (the passage being parts 2₀ and 9 as shown in fig. 3), to inject the plasticated resin into a mold, a buffering unit (13) having a buffering chamber having a volume at least equal to the injection quantity of the resin per shot, the buffering unit receiving the resin plasticated in the plasticating unit during an injection by the injection unit, and the buffering unit feeding resin held in the buffering chamber into the injection unit, and a plunger (11) and a pot (12) with a piston rod attached to the plunger (extending back into chamber 29 as shown in fig. 1) reciprocating the plunger in the buffering unit (see figs. 1 and 3). DE '174 further teaches a means for energizing the plunger to comprise a fluid pressure cylinder (29).

DE '174 fails to teach a pressure sensor for detecting a pressure in the buffering chamber.

Amano teaches an injection molding apparatus comprising a buffering-accumulating chamber (70) which is provided with pressure sensors (83 and 84) detecting pressure in the buffering chamber for the purpose of metering a constant amount of resin to the injection unit (see col. 9, lns. 12-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 as such to have provided the apparatus with pressure sensors acting on the buffering chamber because this would have aided in metering consistent quantities of resin to the injection unit as suggested by Amano.

9. Claims 42-43, 45, 47-49, 51, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baigent (US Pat. No. 3,080,610; previously of record) in view of Yabushita.

Braigent teaches a thermoplastic resin injection molding machine comprising a plasticating unit (3) with a screw (5) for plasticating a thermoplastic resin, an injection unit connected to the plasticating unit (10 and 14) through a connecting passage (see fig. 3) to inject the plasticated resin into the mold, a buffering unit having a buffering chamber (13) contained

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in the plasticating unit receiving the resin plasticated in the plasticating unit during an injection by the injection unit (col. 3, ln. 65 - col. 4, ln. 3), and the buffering unit feeding the resin held in the buffering chamber into the injection unit during measuring resin into the injection unit (col. 4, lns. 4-41). Baiget further teaches the screw to be moved forward and backward through the use of fluid pressure cylinder (60) and corresponding piston rod (fig. 3).

Baiget fails to teach a position detecting sensor for detecting a measurement of the piston rod of the screw.

Yabushita teaches, with respect to the embodiment shown in figure 1, the apparatus to comprise a plasticating unit and screw (33), and a position detecting sensor (34) which monitors movement of a piston rod attached to the screw (see fig. 1) for the purpose of ensuring that the screw provides a prescribed amount of resin to be released from the plasticating chamber with the screw's forward feed movement (see col. 4, lns. 39-58).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Baiget as such to have provided a position detecting sensor which monitors the movement a piston rod attached to the screw (and thus, the movement of the screw) because this would aid in ensuring that the screw provides a

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prescribed amount of resin to the buffering chamber as suggested by Yabushita.

10. Claims 54-55, 57, and 59 are rejected under 35 U.S.C.

103(a) as being unpatentable over Baiget in view of Amano.

Baigent teaches a thermoplastic resin injection molding machine comprising a plasticating unit (3) with a screw (5) (which acts as a plunger) for plasticating a thermoplastic resin, an injection unit connected to the plasticating unit (10 and 14) through a connecting passage (see fig. 3) to inject the plasticated resin into the mold, a buffering unit having a buffering chamber (13) contained in the plasticating unit receiving the resin plasticated in the plasticating unit during an injection by the injection unit (col. 3, ln. 65 - col. 4, ln. 3), and the buffering unit feeding the resin held in the buffering chamber into the injection unit during measuring resin into the injection unit (col. 4, lns. 4-41). Baiget further teaches the screw to be moved forward and backward through the use of fluid pressure cylinder (60) and corresponding piston rod (fig. 3).

Baiget fails to teach a pressure sensor detecting a pressure in the buffering chamber.

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Amano teaches an injection molding apparatus comprising a buffering-accumulating chamber (70) which is provided with pressure sensors (83 and 84) detecting pressure in the buffering chamber for the purpose of metering a constant amount of resin (see col. 9, lns. 12-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Baigent as such to have provided the apparatus with pressure sensors acting on the buffering chamber because this would have aided in metering consistent quantities of resin out of the buffering unit as suggested by Amano.

11. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 modified by Yabushita as applied to claims 1-2, 5, 7, and 35 above, and further in view of Cheng (US Pat. No. 5,098,267; previously of record).

DE '174 and Yabushita teach the apparatus as described above. DE '174 and Yabushita fail to teach the energizing means for the plunger to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger and plasticating screw (12), wherein the plunger is energized by a spring (18) or a mechanical device as

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an alternative to the fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 and Yabushita as such to have used a spring or a mechanical device such as an electric actuator as the energizing means for the injection plunger instead of a fluid pressure cylinder because this is a suitable alternative to provide the energizing force for the injection plunger as suggested by Cheng.

12. Claims 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 modified by Amano as applied to claims 36-37, 39, and 41 above, and further in view of Cheng.

DE '174 and Amano teach the apparatus as described above. DE '174 and Amano fail to teach the energizing means for the plunger to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger and plasticating screw (12), wherein the plunger is energized by a spring (18) or a mechanical device as an alternative to the fluid pressure cylinder (col. 3, lns. 62-65).

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It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 and Amano as such to have used a spring or a mechanical device such as an electric actuator as the energizing means for the injection plunger instead of a fluid pressure cylinder because this is a suitable alternative to provide the energizing force for the injection plunger as suggested by Cheng.

13. Claims 44, 46, 50, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baigent modified by Yabushita as applied to claims 42-43, 45, 47, 48-49, 51, and 53 above, and further in view of Cheng.

Baigent and Yabushita teach the apparatus as described above. Baigent and Yabushita fail to teach the energizing means for the screw to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger and plasticating screw (12), wherein the plunger is energized by a spring (18) or a mechanical device as an to the fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Baigent and Yabushita as such to have used a

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spring or a mechanical device such as an electric actuator as the energizing means for the plasticating screw instead of a fluid pressure cylinder because this is a suitable alternative to provide the energizing force for the injection plunger as suggested by Cheng.

14. Claims 56 and 58 rejected under 35 U.S.C. 103(a) as being unpatentable over Baigent and Amano as applied to claims 54-55, 57, and 59 above, and further in view of Cheng.

Baigent and Amano teach the apparatus as described above. Baigent and Amano fail to teach the energizing means for the screw to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger and plasticating screw (12), wherein the plunger is energized by a spring (18) or a mechanical device as an alternative to the fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Baigent and Amano as such to have used a spring or a mechanical device such as an electric actuator as the energizing means for the plasticating screw instead of a fluid pressure cylinder because this is a suitable alternative to

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provide the energizing force for the injection plunger as suggested by Cheng.

15. Applicant's arguments with respect to claims 1, 36, 42, 48, and 54 have been considered but are moot in view of the new ground(s) of rejection.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

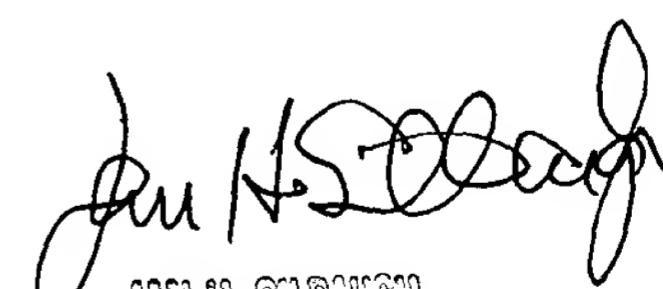
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Heckenberg whose telephone number is (703) 308-6371. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jan Silbaugh, can be reached at (703) 308-3829. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for responses to non-final action, and 703-872-9311 for responses to final actions. The unofficial fax phone number is (703) 305-3602.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Donald Heckenberg
October 18, 2002


JAN H. SILBAUGH
SUPERVISORY PATENT EXAMINER
ART UNIT 1722
10/20/02

10/20/02